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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/690,633  | 10/23/2003  | Udo-Henning Stoewer  | 244375US4IDIV       | 9161             |
| 22850   | 7590        | 05/03/2004           | EXAMINER            |                  |
| OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.<br>1940 DUKE STREET<br>ALEXANDRIA, VA 22314 |             |                      | BRYANT, DAVID P     |                  |
|   |             | ART UNIT             | PAPER NUMBER        |                  |
|   |             | 3726                 |                     |                  |

DATE MAILED: 05/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                      |                     |
|------------------------------|----------------------|---------------------|
| <b>Office Action Summary</b> | <b>Applicant No.</b> | <b>Applicant(s)</b> |
|                              | 10/690,633           | STOEWER ET AL.      |
|                              | <b>Examiner</b>      | <b>Art Unit</b>     |
|                              | David P. Bryant      | 3726                |

-- The MAILING DATE of this communication appears on the cover sheet with the corresponding address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on \_\_\_\_.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_ is/are allowed.
- 6) Claim(s) 1-16 is/are rejected.
- 7) Claim(s) \_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. 10/081,878.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 01222004.
- 4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: \_\_\_\_.

## **DETAILED ACTION**

### ***Claim Objections***

Claim 7 is objected to because of the following informalities:

In line 7, line 3, “circumferential” should apparently be --axial--.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

**Claims 1, 2, 4, 5, 7, and 10-16 are rejected under 35 U.S.C. 102(b) as being anticipated by Ardell (U.S. Patent No. 3,139,786).**

Claim 1: Ardell teaches a method of securing at least two workpieces 6, 7 (see Figure 3), comprising:

inserting a bolt shaft 1 through a bore hole 4, 5 formed in each of the at least two workpieces;

applying a sealant 8 to the at least two workpieces (see column 2, lines 23-25); and engaging a locking collar 9 with the bolt shaft such that the locking collar is securely deformed in a locking manner thereby forcing the sealant to uniformly distribute and form a thin surface sealant layer on the bolt shaft (see Figure 4 and column 2, lines 50-54).

Claim 2: As disclosed in column 2, lines 23-25 and 31-34, the applying step applies the sealant to the two workpieces before the inserting step, and sealant remaining in the aligned openings 4 and 5 gathers on the bolt shaft 1 as the bolt shaft is inserted therethrough.

Claim 4: As depicted in Figures 3, 6, and 7, the bolt shaft 1 has a locking portion including a plurality of grooves 3 around a surface of the bolt shaft and a plurality of peaks therebetween, at least some having a parallelogram shape and being disposed between the plurality of grooves (the parallelogram shape of the peaks being defined by the intersection of the grooves 3 and the axial relief grooves 10), and wherein the sealant 8 is uniformly distributed via the plurality of grooves around the surface of the bolt shaft when the engaging step engages the locking collar with the bolt shaft (see Figure 4 and column 2, lines 50-54).

Claim 5: As depicted in the embodiment of Figure 5, the plurality of grooves 3a extend in a spiral direction helically around the surface of the bolt shaft 1 (see column 2, lines 62-67).

Claim 7: As depicted in Figures 3, 6, and 7, the plurality of grooves include a plurality of first grooves 3 extending in a circumferential direction of the bolt shaft and a plurality of second grooves 10 extending in a direction parallel to the axial direction of the lockbolt such that the first and second grooves intersect with each other.

Claims 10 and 14: As depicted in Figures 3, 6, and 7, the parallelogram shape is defined by the intersection of the grooves 3 and the axial relief grooves 10, and forms a rectangular shape.

Claim 11: As depicted in Figures 3 and 4, when the locking collar is engaged with the bolt shaft, excess sealant is squeezed out a second end of the bolt shaft via at least one groove 10 on a surface of the bolt shaft that opens to an outside at an axial end of the locking portion (which is at the top of the collar 9 in Figure 3).

Claim 12: As depicted in Figures 3, 6, and 7, the plurality of grooves 3 and 10 intersect with one another so that all of said plurality of grooves are interconnected and intercommunicated with each other, and wherein at least one (10) of said plurality of grooves extends to and opens at an open groove end at an axial end of said locking portion along an axial direction of the bolt shaft such that excess sealant is squeezed out the open groove.

Claim 13: As depicted in Figure 5, the locking portion is shown to include helical annular grooves 3a, rather than annular circumferential grooves.

Claims 15 and 16: Although not explicitly disclosed or depicted, it is inherent that the bolt shaft of Ardell included a break-away portion at the end thereof in the form of a constricted neck encircled by a circumferential groove. Upon swaging of the collar 9, the break-away portion of the bolt shaft is broken off at the constricted neck portion. The resulting broken constricted neck portion can be seen clearly in each of Figures 1, 3, and 5.

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 3 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ardell (U.S. Patent No. 3,139,786).**

Claim 3: Ardell teaches all claimed steps, with the exception of applying the sealant directly to the bolt shaft before inserting the bolt shaft into the bore hole of

each of the at least two workpieces.

However, as was held in *In re Burhans*, 154 F.2d 690, 69 USPQ 330 (CCPA 1946), the selection of any order of performing process steps is *prima facie* obvious in the absence of new or unexpected results. In this case, the sealant will coat the bolt shaft in the same manner whether it is applied before or during insertion of the bolt shaft through the bore holes, so the claimed sequence yields no new or unexpected results.

**Claim 9:** Ardell teaches all claimed steps, with the exception of a parallelogram shape in the form of a pyramid with a four-sided base.

The particular shape of the parallelogram is deemed to have been an obvious matter of choice in the absence of persuasive evidence that the particular shape is significant as compared with other parallelogram shapes. *In re Dailey*, 357 F.2d 669, 149 USPQ 47 (CCPA 1966).

**Claims 6 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ardell (U.S. Patent No. 3,139,786) in view of King, Jr. (U.S. Patent No. 3,371,572).**

**Claim 6:** Ardell fails to teach the plurality of grooves including a first group of spiral grooves that respectively extend in a clockwise spiral direction and a second group of spiral grooves that respectively extend in a counterclockwise spiral direction and intersect with said first group of spiral grooves.

King teaches a locking bolt 16 (see Figure 4) having a knurled pattern 24 including a first group of spiral grooves 25 that respectively extend in a clockwise spiral direction and a second group of spiral grooves 25 that respectively extend in a counterclockwise spiral direction and intersect with said first group of spiral grooves. The knurled pattern allows sealing compound to

flow out of the joint along the spiral grooves during swaging of a collar to the locking bolt (see column 4, lines 56-70).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have formed the grooves of Ardell as a series of intersecting spiral grooves, as taught by King, to provide a locking portion more resistant to relative rotation between the bolt shaft and the collar, while at the same time maintaining relief channels for the sealing compound.

Claim 8: As depicted in Figure 4 of King and disclosed in column 4, lines 65-67, the knurled pattern **24** forms a series of diamond shapes.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Hurd et al. (U.S. Patent No. 3,459,447) appear to teach a knurled pattern on the locking portion of a lockbolt that is formed from a plurality of pyramidal shaped parallelograms. SU 1567808 teaches a lockbolt in which a sealing compound is applied to the lockbolt *prior to* insertion through aligned bore holes in the workpieces to be joined. Schoenwaelder et al. (DE 19712180 A1) teach a lockbolt that utilizes a sealant in the form of a curable *adhesive*, rather than simply a viscous sealant.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David P. Bryant whose telephone number is (703) 308-1859. The examiner can normally be reached on Monday-Thursday (6:30-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Vo can be reached on (703) 308-1789. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



David P. Bryant  
Primary Examiner  
Art Unit 3726

dpb  
4/27/04